



# Northern three–radial megacontinent of Earth: Outstanding geologic-geophysical discovery of the XXI century

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## Publication History

Received: 11 June 2014

Accepted: 23 July 2014

Published: 1 August 2014

## Citation

Zhirnov A. Northern three–radial megacontinent of Earth: Outstanding geologic-geophysical discovery of the XXI century. *Discovery*, 2014, 22(74), 72-85

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## General Note



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## ABSTRACT

The Northern largest continent of Earth, with three southern being narrowed ends – American, African and Australian is for the first time considered. It is shown that the central part of it is lowered in the Paleozoic – Cenozoic time and covered with water of the Arctic Ocean. The continent exists initially, since the Hadean, in strictly continuous situation. It is characterized by long geological development; big power of crust, folded structures of sedimentary rocks, both specific chemical and petrographic composition of crust. The second continent of Earth – Southern (Antarctic) occupies small area of the southern pole. Establishment of the huge Northern continent of Earth as specific tectonics and geochemical Earth's anomaly, has fundamental value for solution of a planet's problem evolution at astronomical and geological stages of its existence.

**Keywords:** Northern megacontinent, three southern ends, tectonics - geochemical anomalies.

## 1. TOPICALITY OF A PROBLEM

Already 300 years five continents, representing large territories of land over level of the World Ocean are represented on Earth maps: North American, Southern American, Europe-Asian, African and Australian. In the XIX century the small southern continent was added to them – the Antarctic continent located on the square of the South Pole of a planet. But as the continent as separate large part of land, has to be surrounded with the Ocean from all sites, in strict understanding we can define only three continents. It is the American continent, Europe-Asian (with African and Australian the ends) and Antarctic. This situation is obvious as Northern and Southern American continents are connected among themselves by the narrow overland isthmus, Africa directly connects to Asia Minor, and Australia connects to South East Asia the Filipino-Indonesian island arch with a wide shelf (Belousov, 1989; Kuprin, 2013; Zhirnov, 2014<sub>1</sub>).

This fact was in details proved in the second half of the XX century, after carrying out large-scale bathymetrical researches of a relief in the bottom of oceans and drilling of many hundreds underwater boreholes. It appeared that habitual outlines of continents on maps aren't absolutely exact. If to add to them the suburbs of continents flooded recently with oceans, it will appear that on a planet there are only three above continents.

XXI century has brought new scientific surprises. It appeared that on our planet there are only two continents – Antarctic (Southern), very small continent, and the Arctic (Northern) huge continent (megacontinent) in whom all other known continents are connected together (Kashubin et al., 2011; Zhirnov, 2011; 2014<sub>1</sub>; 2014<sub>2</sub>).

The solution of the drawn scientific conclusion was brought by new extensive geological and geophysical researches in the bottom of the Arctic Ocean. It agrees the new data; it became clear that the bottom of this Ocean represents continuous continuation of the North American and Europe-Asian continents. Actually, both specified continents are not two different continents, as always was considered, and one continuous continent, but only bent (lowered) in the subpolar part in the recent geological past and filled with water of the arisen young Ocean.

Therefore, on a planet Earth is available the Northern (Arctic) uniform continent covering the North Pole like "cap", with the largest continental branches ("beams") departing from it to the south: American, Europe-African and Asia-Australian. It is the fundamental new discovery allowing from cardinal new actual data to explain formation and evolution of continents and all planet Earth (Zhirnov, 2011, 2014<sub>1</sub>, 2014<sub>2</sub>).

Naturally, such scientific situation demands special broad consideration to that this article is devoted.

## 2. SCOPE OF THE STUDY

Object of this research is the Northern largest continent of Earth's structure. The continent covered a planet from the North Pole in the form of a cap and crossing a body of a planet from the North to the South by three separate huge continental branches ("radials").

### 2.1. Materials

The materials used include the author's papers on the theme, synthesis and critical analyses of the published materials on many sciences: geography, geology, geochemistry, geophysics. The special attention is paid to the data proving the continental nature of the Arctic Ocean's bottom.

### 2.2. Methodology

Known determined data of XX century and both the new geological –geophysical data of XXI century are used for solution of the problem.

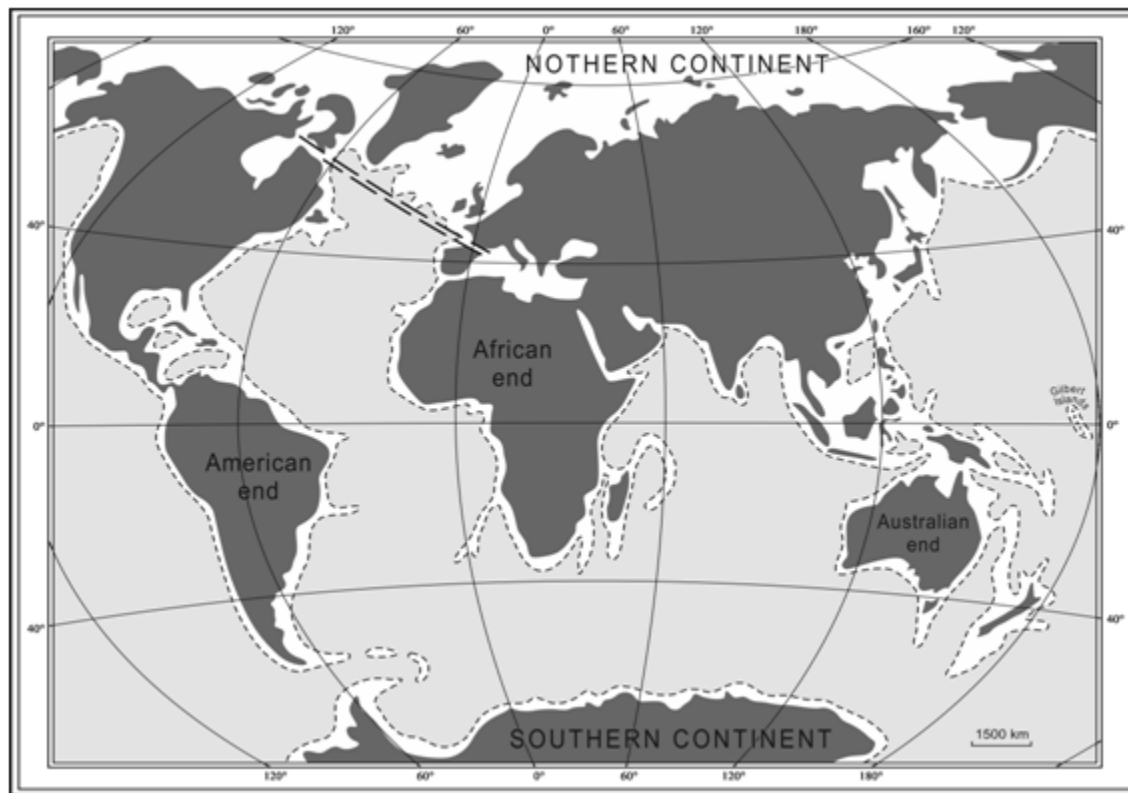
## 3. RESULTS

### 3.1. Short geographical, geological and geophysical data on a structure of continents

Rather detailed characteristic of a geological structure of continents and bottom of oceans and their basic difference is provided in the latest works based on generalization of a huge saved-up material on this problem (Blyuman, 1999; 2011; Zhirnov, 2014<sub>1</sub>, 2014<sub>2</sub>). We will give only some main conclusions necessary for complete perception of a problem, stated in article. Researches of the continents' morphology features were actively conducted by many largest scientists in XVII - XIX centuries (F. Bacon, C. Lyell, M. Bertran and others). The main established features in their structure the following.

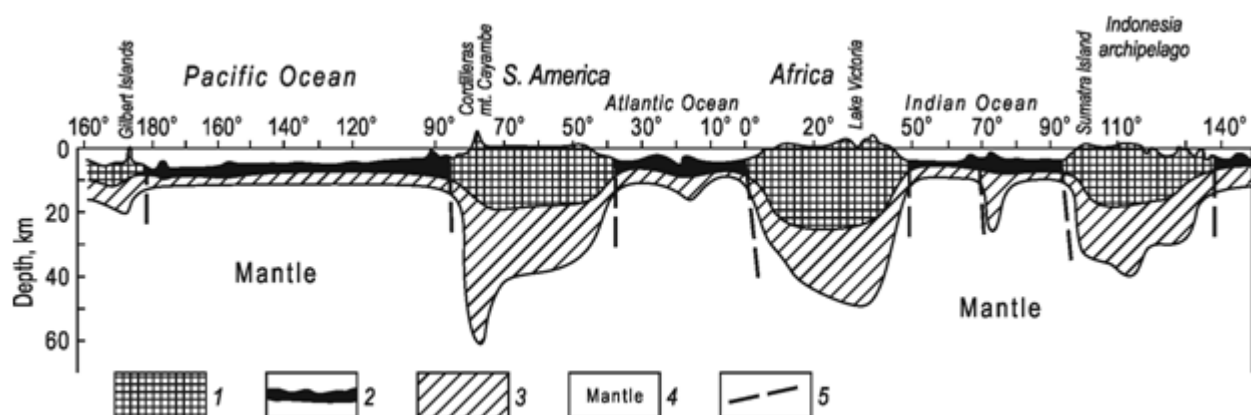
- 1) The largest continents of the Earth, American and Europe -Asian with African and Australian ends, have as a whole longitude direction (Figure 1);
- 2) The continents have the triangular forms on the North that narrowed to the South;

3) The continents southern ends sharply bending to the east, especially the large bend is near the south-east part of Asia. The great chain of islands in this region bends to the south-east then along the latitude direction (Sholpo, 1986; Zhirnov, 2014<sub>1</sub>).



**Figure 1**

Known continents of Earth, as southern ends of the Northern megacontinent. Taking into account data (Gegraph. atlas..., 2002; Zhirnov, 2014<sub>1</sub>).



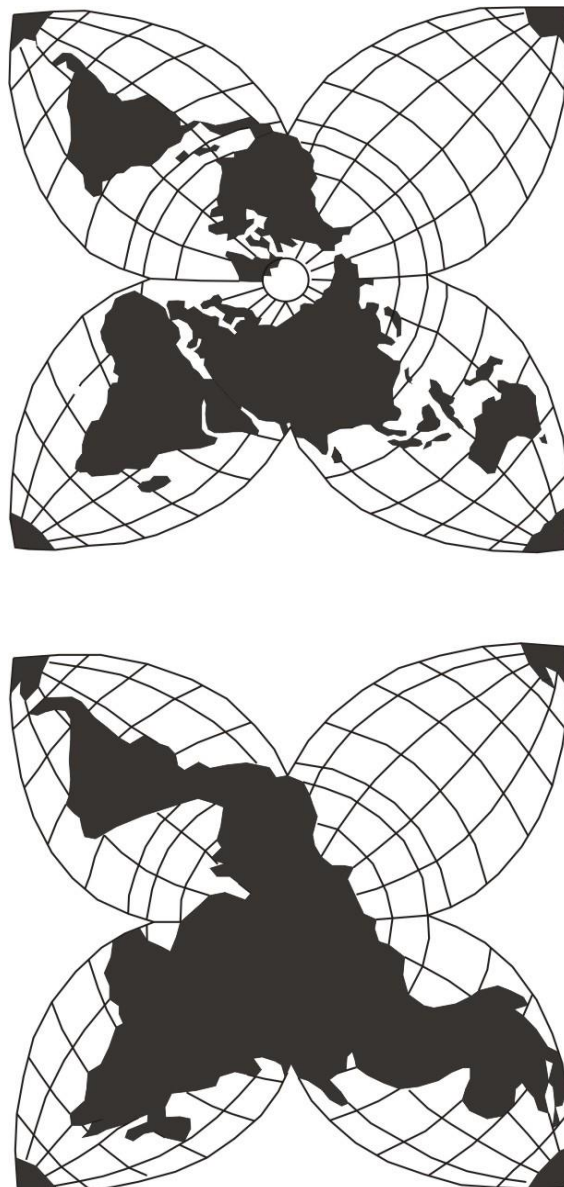
**Figure 2**

Geologic-geophysical section of Earth on the equator (Demenitskaya, 1975).

1 – granite-gneiss layer of the continents; 2 – layer's young basalts of oceans' bottom; 3 – granulite-basic layer of continents; 4 – mantle; 5 – faults.

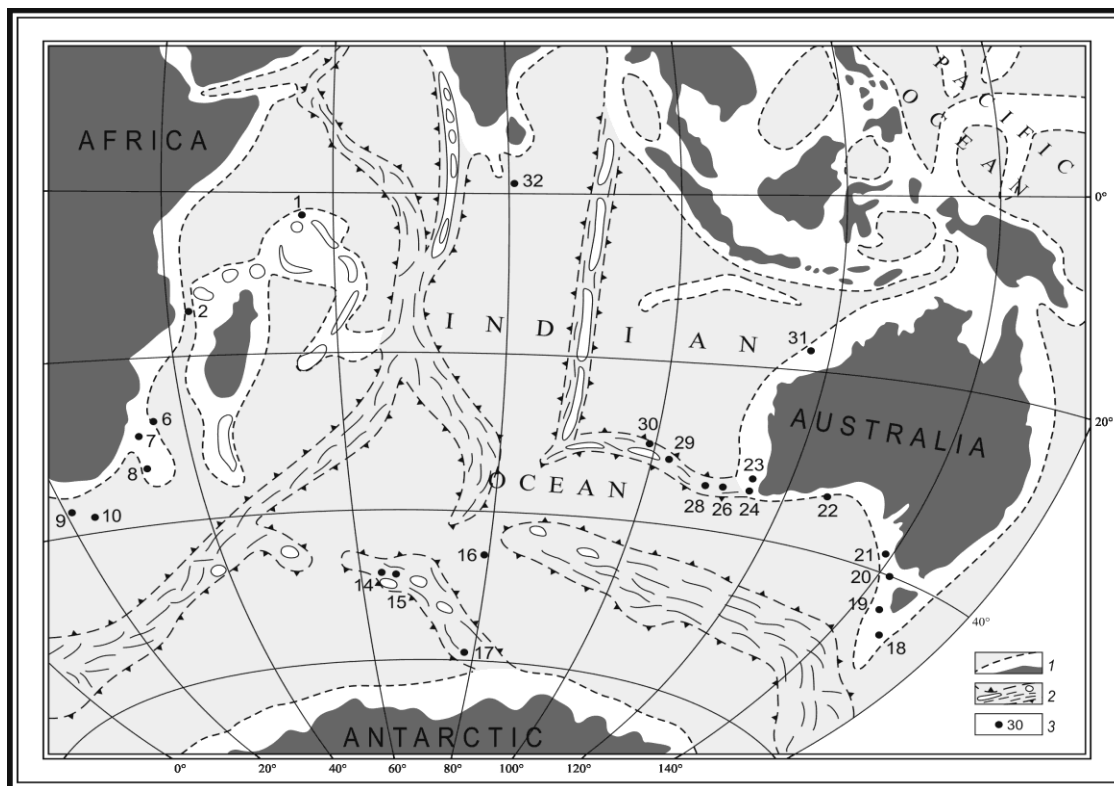
Geological features of the continents: they actively developed during all geological history, have the big power (30-60 km), characterized by folded forms of sedimentary rocks and differing specific chemical and petrographical composition of crust from a chemical and petrographical composition of oceans' bottom rocks (Figure 2).

Geophysical features of a structure of continents and bottom of oceans are accurately expressed in the different speed of passing of longitudinal and cross seismic waves through thicknesses of rocks with different petrographic structure. Therefore the seismic method of research of the deep horizons of crust and a mantle (and even Earth core) is now the main method of research of a deep structure of crust at big depths, from 1-3 km to 30-70 km and more. Broad application of this method allowed to establishing the above distinctive features of a structure of crust of continents and a bottom of oceans, first of all on the power and petrographic composition.



**Figure 3**

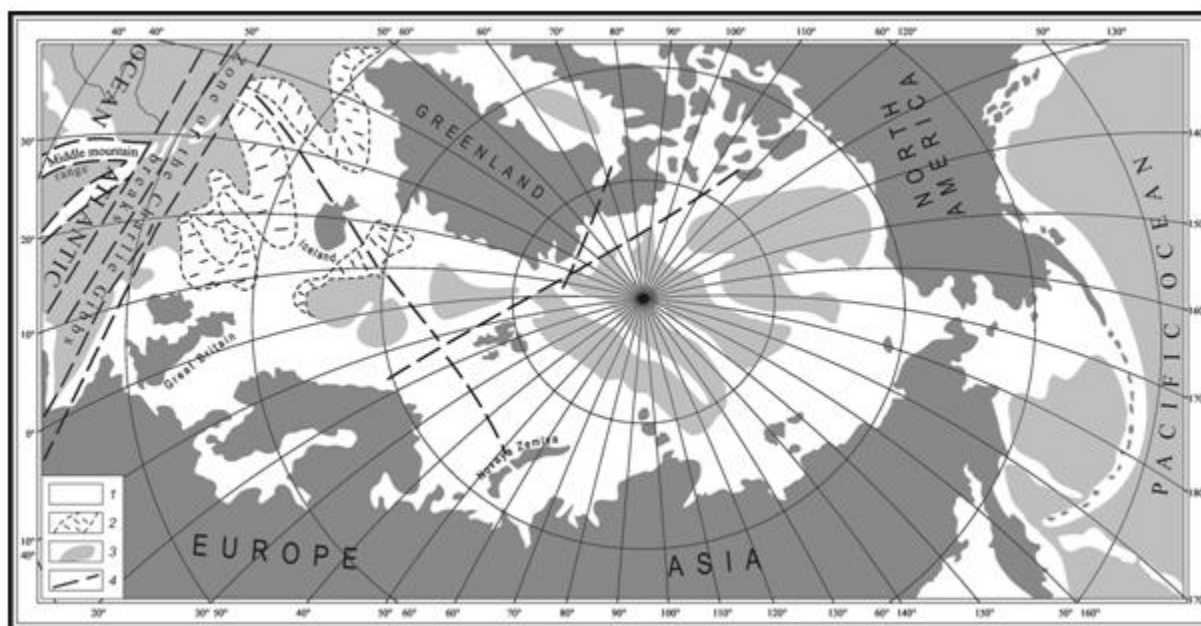
Planned position of the uniform Northern megacontinent of Earth: up – in modern time, down – in recently geological past (5 – 100 millions years ago), before flooding it borders and Arctic basin of World ocean's waters (World Tectonics map, 1982; Gegraph. atlas..., 2002; Zhirnov, 2014).



**Figure 4**

Flooded continental margins of continents in the Indian Ocean

1 – continents (black), shelf (white), oceans (grayish); 2 – underwater ridges; 3 – places of the continents rocks (Vasil'ev, 2013).



**Figure 5**

Plan of a surface of the Arctic Ocean (Zhirnov, 2014).

1 – continental shelf; 2 – continental slopes; 3 – deepwater hollows; 4 – faults.



### 3.2. The Mesozoic - Cainozoic flooding of the continents' frontier areas

To the middle of the XX century the convincing evidence was obtained that continents of Earth have long history of geological development and hold long steady position in space. From other party there were data about young, the Mesozoic - Cainozoic, time of world oceans and their progressing development. In particular, according to paleographic data it was established that on a place of the Caribbean Sea in the Mesozoic there was the land which has fallen in the Paleogene (Irdli, 1954). In the Neogene were formed Okhotsky, Japanese and some other seas on east suburb of the Asian continent (Belousov, 1962; Orlenok, 2010) and quite recently, in the Quaternary Period, the seas and passages within the Indonesian archipelago were formed (Belousov, 1989; Orlenok, 2010; Kuprin, 2013).

Application new bathymetrical method of the relief's research in the World Ocean, and also drilling in the oceans' bottom many hundreds boreholes had huge value for studying of underwater suburbs of continents. Contemporary maps give the fine image of all main details of the oceans' underwater relief. On the basis of new data already in the middle of the XX century the main conclusion was stated: "growth of oceans at the expense of continents presents the leading direction in evolution of the Earth surface" (Belousov, 1962, page 377). There are many papers proving consecutive lowering of large territories of land on a place of modern Atlantic and Pacific Oceans, especially sharp in Cainozoic, the Neogene - Quaternary time, and filling with their arising oceanic water. There are many examples of it in works (Belousov, 1989; Orlenok, 2010; Zhirnov, 2014<sub>2</sub>).

Numerous new data on the continents' flooded suburbs confirm their continental origin; in particular confirm existence in such sites of more powerful crust, but with the reduced granite layer, and availability of separate exits of ancient metamorphic rocks (Figure 3, 4).

## 4. CHARACTERISTIC OF ARCTIC "CONTINENT", AS BINDING PART OF THE AMERICAN AND EUROPE-ASIAN CONTINENTS

### 4.1. Some previous data of the Arctic Ocean's bottom continental nature

The Arctic Ocean is the smallest in comparison with other oceans of Earth, it is also differs the smallest depths and has extraordinary wide underwater continental suburbs (Figure 5). Area of the ocean is 13 million km<sup>2</sup>. But more than a half of it is shallow water (shelf). At the same time it is the most difficult territory in the morphological and geological relation. The central part of it is crossed by several longitude underwater ridges divided by deep hollows – grabens.

The question of the Arctic Ocean's bottom geological structure was actively discussed in the middle of the XX century. Many known geologists considered that under the ocean water there is a continental crust – continuation of the Europe-Asian and North American continents (N. S. Shatsky, V.A. Obruchev, D.G. Panov, etc.). The other geologists assumed that eastern part of an ocean floor, Canada part, is continental crust and western, Europe-Asian, part of a bottom is oceanic crust. Some geophysics also allowed possibility of existence within the territory of the ocean's bottom separate sites with oceanic crust.

However later seismic researches, established quite considerable power of sedimentary rocks in Nansen, Amundsen and Toll's hollows, 7 km exceeding by places that isn't characteristic for typical oceanic crust. Besides, the spreading base had difficult deployed character that also doesn't allow opportunity to carry it to oceanic crust. Therefore the other geologists also recognized the continental nature of the Arctic Ocean's bottom making a whole with the lowered Canadian-Greenland platform (Demenitskaya, 1975; Serpukhov et al., 1976).

However later, the Northern Atlantic began to be considered to the island of Spitsbergen, and a bottom of this part as oceanic crust (Hain and Lomize, 2005; Pushcharovsky, 2013).

### 4.2. Surface of the Arctic Ocean's bottom according to a bathymetric Measure

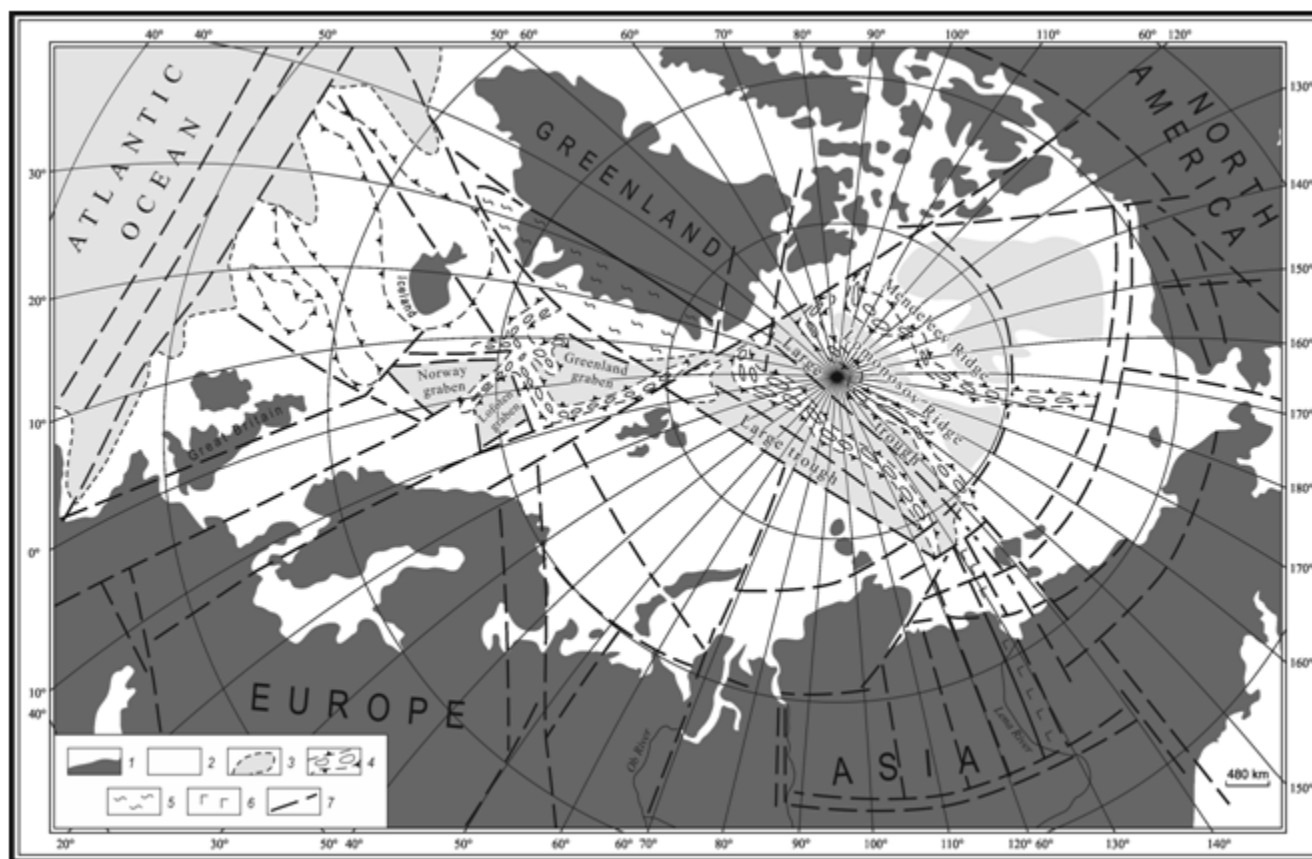
As it was noted above, in the territory of the Arctic Ocean the shelf of huge width from both parties – with American and with Europe-Asian is developed mainly. The shelf is the lowered underwater suburbs of continents bottom depth in which makes 200-600 m. Only on sites of the continental slope depth of water reaches 1.5 - 2 km and more. In particular, Paleozoic and Mesozoic thicknesses of sedimentary rocks in northern part of the American continent are very gently sloping with inclination to the North towards the Arctic Ocean (Belousov, 1962). And in this shallow part of a shelf there are a huge number of islands of the different size, as direct exits of land over an ocean surface. The similar picture is observed and on the square of the Europe-Asian shelf where islands there are less (Figure 5).

### 4.3. Types of continental crust in the bottom of the Arctic Ocean

Due to the increased gas content and oil-bearing capacity of the Arctic shelf, in its territory huge volumes of underwater drilling and seismic researches are executed in recent years. Within the international project "Chart Atlas of the Geological Maintenance of the

Circumpolar Arctic of Scale 1:5 000000" (BULLETIN 54 CGMW, 2006) Russia was the country coordinator by drawing up the Tectonic map of the Arctic, one of which components is the card of power of crust. Such card is created at VSEGEI institute of Russia, taking into account the provided materials from Canada and Denmark. For drawing up this card all available deep seismic cuts to the north 60° NL created from 1960 for 2010 were used 150 seismic cuts with a general extent of 90 thousand km (Kashubin et al., 2011). However arrangement of these profiles is the very uneven. Their most part is the share of continental northern part of Europe-Asia – from the western part of Scandinavia in the West to Verkhoyansk Mountains in the East (132° to EL).

The main conclusion of the done work: "The Europe-Asian and North American continental suburbs are a uniform ensemble of continental geological structures with the general history of geological development. Division of this ensemble into shelf and deep-water parts resulted from neotectonic immersion of the central part of the Arctic basin "(Kashubin et al., 2011, page 12).



**Figure 6**

Nature of variability of crust's power and features of tectonics in bottom of the Arctic Ocean. Taking into account data (Demenitskaya, 1975; World Tectonics map, 1982; Gabishev, 1997).

In a geological structure of a bottom of the Arctic Ocean usual three-layer continental bark is established. The bottom layer, most ancient (Hadean), is presented by granulite-gneissic (metabazalt) layer, the center - granite-gneissic, top layer is presented by sedimentary rocks of Phanerozoic age – from Devon to Jurassic, Cretaceous and the Cenozoic (Konuhov, 2010; Morozov et al., 2013). However thickness of separate layers of rocks very uneven. Their distribution on the area is very irregular. Powerful continental crust, 35-45 km, is characteristic for the continental frames of the Arctic basin whereas in the ocean bottom on the area the 17-34 km continental crust (Figure 6) sharply prevails. In particular, the power of crust is equal in east part of the Arctic basin: on the ridge of Lomonosov of 17-19 km, on Mendeleev's ridge of 31-34 km, in hollows of Submariners and Makarov of 19-21 km. Only in the southern part of a hollow of Submariners the power of crust is insignificant, 7-8 km (Kashubin et al., 2011).

And only in separate deep grabens - Norwegian, Greenland, Lofoten, Amundsen and Nansen, is established crust of small power (5-7 km), allegedly oceanic type (Kashubin et al., 2013). Other researchers consider this crust as continental as its consolidated layer is presented by "difficult deployed thickness", not characteristic for the base of oceanic platforms" (Serpukhov et al., 1976, page 501).

The second characteristic of the Arctic crust's structure is sharply reduced power of a granite-gneissic layer, to 3-5 km, and, on the contrary, more increased power of the bottom granulite-bazalt layer (Figure 7). It is visually expressed in figure 5 and on an example of a section of crust through the Iceland - Farer raising (Figure 8).

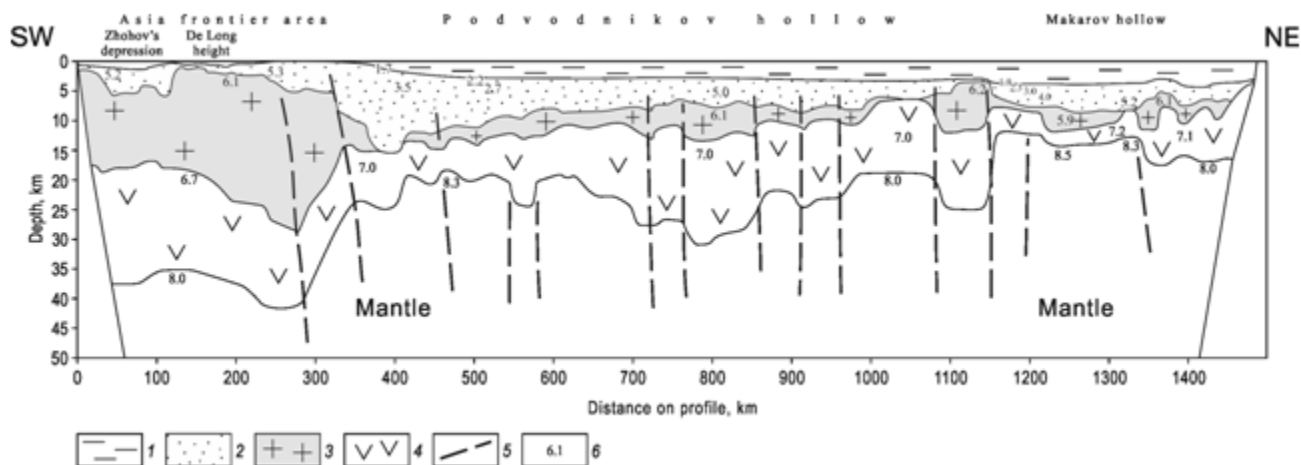
Within underwater ridges of the Arctic basin among the rocks lifted by drags metamorphic sedimentary rocks, dolomite and quartz sandstones, with fauna of the late Paleozoic, from Devon to Perm prevail. About 15% make ancient (Archean) magmatic rocks– gneiss-granites, a gabbro dolerites, and also green slates, metamorphic gabbro and peridotites. It is supposed that these rocks are a part of the acoustic base covered by a layer friable precipitation and young basalts. In particular, the core of young basalts of Cretaceous - Cainozoic age in the time of drilling separate wells - is received (Kashubin et al., 2013<sub>1</sub>).

Basalts of underwater ridges and underwater grabens on boards of Gakkel's ridge significantly differ. On ridges usual basalts normally alkaline and moderate alkaline, characteristic on geochemical features for basalts of the Chukchi underwater plateau, the island of Vaigach and continental basalts on a plateau the Decan (in India) are developed. Basalts of Gakkel's ridge differ higher content of magnesium and the low content of potassium that pulls together them on chemical features with oceanic toleit basalts like E-MORB. Besides basalts, the samples of gabbro - dolerites and serpentinous peridotites were lifted from Gakkel's ridge (Kashubin et al., 2013<sub>1</sub>).

#### 4.4. Tectonic dislocations in the bottom of the Arctic Ocean

Tectonic structure of the Arctic basin's bottom is quite difficult and very non-uniform in different parts that is defined by broad development of faults. According to geological and geomorphologic data many large faults of the different directions are allocated. Faults of the longitude and latitude directions are prevail whereas breaks of the northwest direction are less widespread. The latitude breaks are more developed in east part of the territory where they form some arches surrounding the Arctic basin from Asia and North America. Here the longitude breaks of the big length crossing the bottom of the Arctic Ocean and adjacent parts of Asia (Figure 6) are widely developed also.

The main break of the territory is the North Greenland (Spitsbergen) break holding cross position concerning direction of the large Greenland's island. This break divides the territory into two parts, various on a geological structure and the plan of tectonic dislocations. In northwest part continental formations - the island Greenland and northern island part of Canada prevail. The difficult area belongs to the Arctic basin on tectonics between Greenland and Scandinavia here. In particular, there is an island Iceland, some not extended and multidirectional underwater ridges and three deep grabens – Greenland, Norwegian and Lofoten.

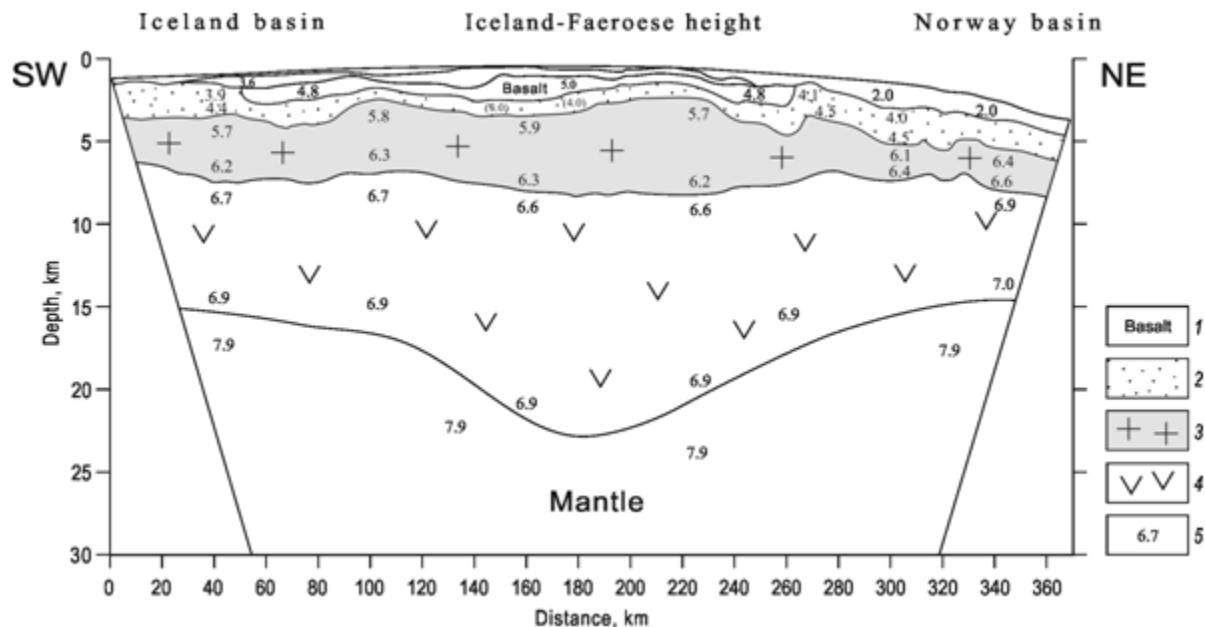


**Figure 7**

Geological - geophysical section through East Arctic basin (Kashubin et al., 2013<sub>2</sub>)

1 – Sea water; 2 – sedimentary rocks' layer; 3 - granite-gneiss layer; 4 - granulite-basic layer; 5 – faults; 6 - velocity of longitudinal seismic waves' figures.





**Figure 8**

Geological-geophysical section through West Arctic basin - the Iceland – Farer height (Bohnhoff and Makric, 2004) from (Kashubin et al., 2013<sub>2</sub>)

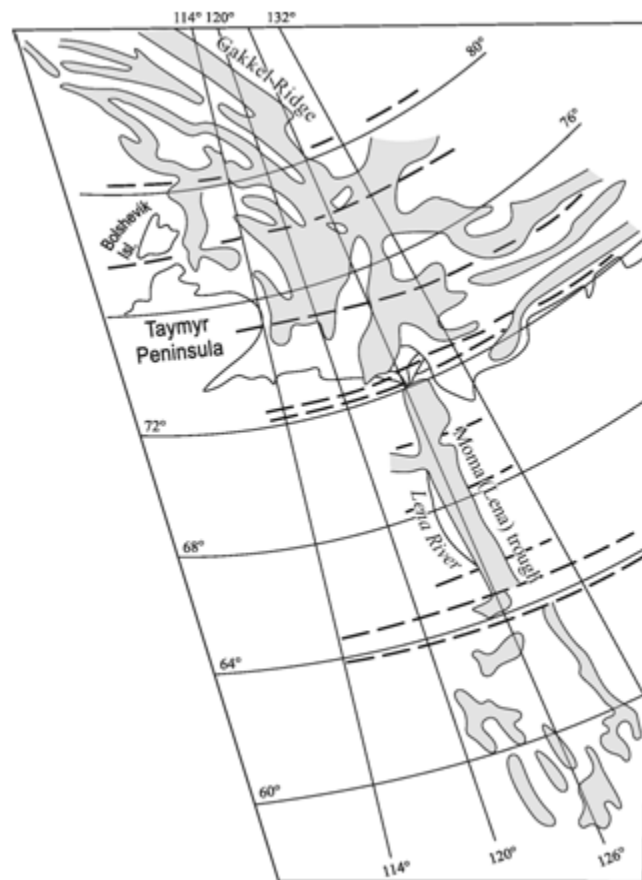
The main part of the Arctic Ocean is to the southeast from the Greenland cross break. Nearly a half of this area (southern) is the share of a wide shelf with powerful continental crust. Another, northern, part it (on the different parties from the North Pole of Earth) is characterized very uneven structure, with alternation of large hollows grabens and certain underwater ridges. Hollows are Canadian, Makarova, Submariners, Amundsen and Nansen. Between them underwater ridges of Mendeleyeva, of Lomonosov and of Gakkel stretch. It is characteristic that near the North Pole the ridge of Lomonosov sharply changes the direction and bends around North Pole's Square with the East (Morozov et al., 2013<sub>1</sub>). If to consider that in Devon this spine represented a geosyncline trough, it is obvious that at that time this initial trough was formed on the border of high tectonic horst which should be bent with east side. Therefore, Nansen trough between Lomonosov and Gakkel's ridges was in Devon as series of peridotite rocks' horsts not less than 10 km high. For past geological time it nearly a half was eroded, delivering a terrigenous material in surrounding hollows. Modern thickness of crust here (5-7 km) it is the rest of former more powerful crust after made erode.

The second major structural element in the bottom of the Arctic Ocean and in the adjacent mainland is Central (Greenland-Gakkel-Lena) the tectonic structure of long polycyclic development. It crosses a bottom of the Arctic basin on its middle and adjacent continents, from the northeast to the southeast and further – to the south, along the Lena River right bank on eastern frontier of the Siberian platform (Figure 6).

Within Greenland this zone is presented by the East Greenland belt of folded sedimentary rocks (length about 1700 km), formed in the Proterozoic, the early Paleozoic (Silurian) and to the Mesozoic - Cainozoic time. Rocks of this belt are localized on the extreme margin of Greenland and are widespread in the bottom of the adjacent Greenland Sea (Kropotkin et al., 1971; World Tecton. map, 1982).

The central part of a considered tectonic belt is presented very wide (500-750 km) and extended (2 thousand km), the deep graben consisting of two large hollows – Amundsen trough and Nansen trough, and dividing them along a longitudinal axis, Gakkel's ridge. The graben is concluded between two cross faults– North Greenland in the North and North Taimyr in the South. It is surprising and most mysterious part of the territory of a bottom of the Arctic Ocean as here on the huge square come to an underwater surface the rocks of primary's gabbro-peridotite, metamorphic rocks and granites. They are found in many places of Gakkel's ridge representing ennobled, raised part in the middle of a huge graben (Kashubin et al., 2013<sub>1</sub>). This primary peridotite crust not oceanic, but continental type which composes the bottom (third) layer on all continents. It differs from oceanic crust (with low power and quiet peridotite crust) the big power and an essential dislocated structure. Such "deployed" peridotite crust is characteristic for Amundsen and Nansen's hollows (Demenitskaya, 1975; Serpukhov et al., 1976).

Now it is proved that middle Atlantic ridge was formed in ancient fault and the first stage power forming peridotite and basalts lavas in it was in Proterozoic time in period of power planetary tectonics activity. These rocks are strongly changed – they are metamorphized and serpentinized and are metaperidotites and metabasalts rocks (Shulyatin et al., 2012).



**Figure 9**

Strip magnetic anomalies of the Arctic basin proceeding on the continent in a valley of Lena River (Demenitskaya, 1975; Gabishev, 1997).

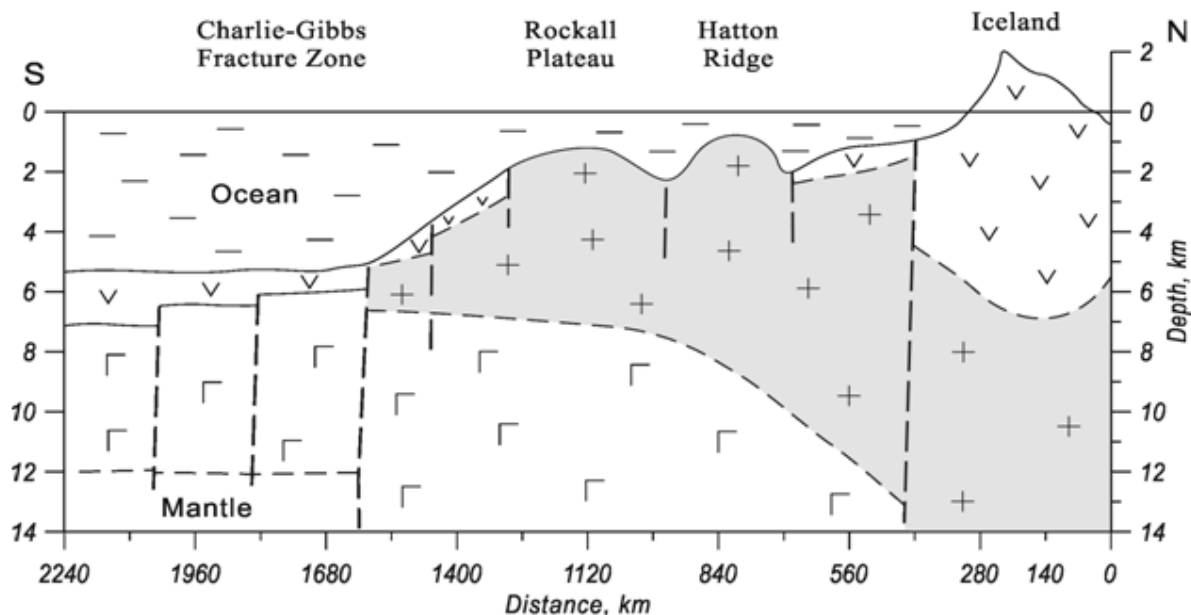
In Amundsen's hollow, in 100 km from northwest part of the ridge of Lomonosov, fragments of ancient granites with absolute age of 2.5-3.0 billion years (Morozov et al., 2013) are found. It is supposed that they were transferred from the ridge of Lomonosov. However their local situation in limits of the tectonic horst located directly on the square of the North Pole of Earth is represented to more probable. This horst also became the reason of a sharp bend to the East of the Lomonosov's ridge.

Thus, later granite-gneissic crust was formed in the separate local sites within Amundsen and Nansen's hollows, apparently, small power, to 1-2 km (whereas the general power of crust here 5-7 km).

Characteristic feature of the above hollows is existence in them bottom several strip longitudinal anomalies of the raised magnetic field (Demenitskaya, 1975). It testifies to existence within hollows of a series of longitudinal breaks along them peridotites of the top mantle were injected. Such strip magnetic anomalies are characteristic for a number of regions of the Atlantic Ocean where they are parallel to the Mid-Atlantic Ridge (Belousov, 1975). Similar anomalies are known and on the east suburb of the Far East of Russia where they form a huge northeast belt along eastern frontier of the Kurilo-Kamchatsky tectonic structure, and a longitude belt along the islands of Sakhalin and Hokkaido (Demenitskaya, 1975; Zhirnov et al., 2011).

Near the continent magnetic anomalies of Gakkel's ridge and Amundsen's hollow connect, extend on cross breaks barriers, and further to the South, in a valley of Lena River, one wide magnetic anomaly, but already in the longitude direction, follows. The southern part of the Central tectonic belt is dated for the mainland of Asia where it is presented by the Lena regional trough (or the Moma trough) 1200 km long, 100 km wide. This trough coincides with a wide valley of Lena River and it is eastern frontier of the Siberian platform (Gabishev, 1997). In a geological structure of a trough valley distinguish two structural floors. The first floor is presented by the ancient (Archean) base, top - is put by folded structures of sedimentary rocks of Cretaceous age, 3-4 km (Krasnaey, 1966). The structure of a trough valley is non-uniform on a relief. In it are allocated on stretch four large raising (horsts), divided by

cross (width) breaks from the hollows located between them. According to geophysical data, there are the large number peridotites dykes in the trough's base (Gabishev, 1997). This trough valley is fixed in a geomagnetic geophysical field by longitudinal positive magnetic anomaly. Anomaly is traced from the mouth of the Lena River and is direct continuation to the south median magnetic anomaly of Gakkel's ridge (Demenitskaya, 1975). At latitude 64° NL anomaly is limited to a cross Vilyuy break, but proceeds and further to the South, with some deviation to the East (Figure 9).



**Figure 10**

Probable geological section on border of a joint of continental crust with oceanic crust in Northern Atlantic. Taking into account data (Belousov, 1975; Serpuhov et al., 1976; Bohnhoff and Makris, 2004). Signs see on fig 8.

#### 4.5. Border of the Arctic Ocean with the Atlantic Ocean

The Arctic Ocean almost from all directions is surrounded with continental land. There is only a narrow passage, 1600 km wide, where it directly connects to the Atlantic Ocean. It is the area between Greenland in northwest and Scandinavia in southeast. The concrete border between the specified oceans is considered a cross Icelandic and Faroese ridge or a threshold between Scotland and Greenland, hidden on the bigger square a small shelf (Serpukhov et al., 1976) that is wrong on my opinion. There are some cross ridges and the high plateaus covered with shallow water which proceeding to southwest, to cross large Charlie Gibbs' break. And this part of the territory is presented by continental crust.

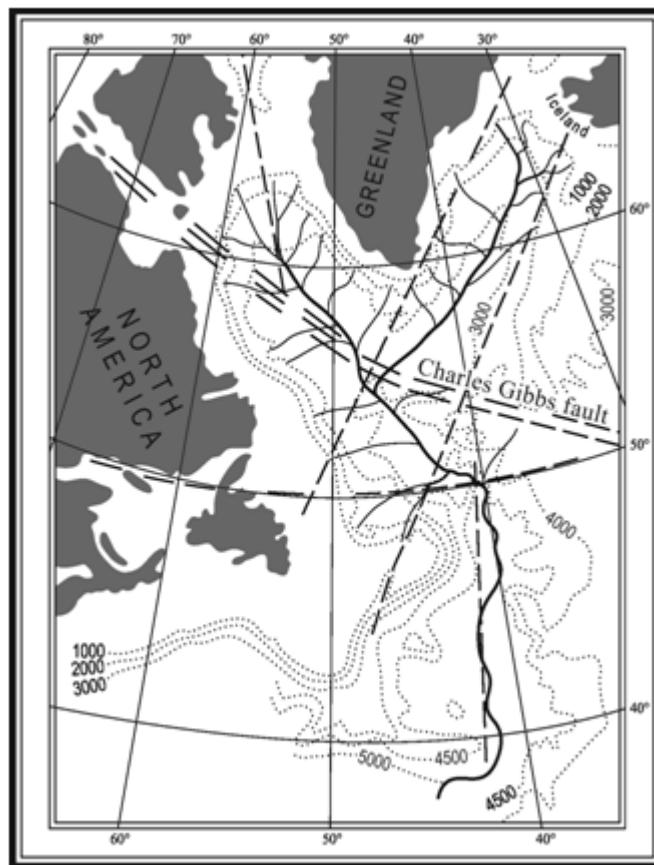
Therefore the geological border between continental crust of the Arctic Ocean and ultrabasic (oceanic) crust of the Atlantic Ocean is in 1800 km to the southwest from the Icelandic and Faroese threshold. Here it is expressed by a cross zone of the pulled together breaks of Charlie Gibbs, stretching from Hudson Strait in Canada to the Bay of Biscay at Europe and further on the southeast, separating Spain from France (Figures 1, 5).

All territory of a bottom of the considered passage between oceans is put powerful (20-30 km) by three-layer crust of continental type. For example, on "the island Iceland thickness of crust makes 28 km. It consists of the 15 km "granite" layer and "granulite-basite" the 10 km layer. The granite layer covered by the modern basalts which power on the west bank of 1.7 km, and to the East increases to 8 km" (Serpukhov et al., 1976, page 73). Actually, this island consists of a horst in West and a deep graben in east, separated from each other a large break. The concrete section of the Icelandic and Faroese threshold is illustrated in Figure 8.

Besides this cross threshold there are longitudinal ridges - Reykjanes, Hutton, Rokoll divided by deep continental slopes. All of them are also put by continental crust (Bohnhoff and Makris, 2004; Orlenok, 2010; Pushcharovsky, 2013). The probable geological section of a zone of a joint of continental and oceanic crust of Northern Atlantic is given in Figure 10.

Lowering of a bottom of the Atlantic Ocean on a site of Charlie Gibbs' breaks and to the South from it took place quite recently – at the end of the Mesozoic (in Cretaceous time). While before there was a land with the developed river network. The rivers flew

down from the ridges of America, Greenland and the Island-Farar ridge on land (Figure 11). In Cretaceous - Cainozoic time the territory of Atlantic was deeply lowered, on 3-4 km, on Charlie-Gibbs's break relatively Arctic continent part. Also the territory between Greenland and Scandinavia was slightly lowered, on 0.5-1 km.



**Figure 11**

Position river canals on dry land between American and Europe-Asian continents before Cretaceous time (150 million years ago). On (Heezen et al., 1951). Out of (Serpukhov et al., 1976). Point lines are lines of equal depth of contemporary Ocean, in m. It is added Charles Gibbs' fault and the others faults.

## 5. DISCUSSION

Given actual geological and geophysical data, saved up during of two centuries, don't leave doubts in the continental nature of a bottom of the Northern (Arctic) Ocean of Earth. Consequently there is only one enormous continent (besides the Antarctic southern continent) on the Earth - the Northern continent. It uniform in the North, and with three separate large continents (in the form of separate branches) longitude stretch proceed to the South from it – American, African and Australian as the isolated ends of the uniform Northern continent.

In the northern subpolar part this megacontinent was lowered in the Paleozoic - Cainozoic time and covered with waters of the Arctic Ocean. Therefore the mankind long time considered all continents of Earth surrounded with oceans, as the certain continents isolated from each other. However the new scientific data on a geological structure of all continents of the Earth, including geological structure of the Arctic Ocean's crust and underwater suburbs of known certain continents, establish the fact of existence of the Earth's uniform Northern megacontinent which separate parts were flooded with waters of the World Ocean in the recent geological past.

The reason of small thickness of granite crust at the bottom of the Arctic is caused by feature of evolution of a planet during the Archean period of time (4 billion years ago) when the planet quickly rotated and was in the basic in a viscous state (Zhirnov, 2014<sub>2</sub>). At such rotation the powerful forces directed to the center of a planet, squeezing it develop from poles and interfering lifting to poles of endogenous fluids from Earth core. Geological and geophysical study of a bottom of the Arctic is very uneven and considerable volumes of profile researches of the Arctic's different parts, especially on a site between a break of Charlie - Gibbs and the Icelandic - Faroese threshold are required still. So far as territory of the Arctic's shelf concludes the large reserves of oil and gas,

it is possible to hope to find the new oil-bearing areas. Therefore they are very necessary and have to be carried out already in the near future.

## 6. CONCLUSION

The first concrete conclusion of article is represented rather reasonable. The main continent of Earth is the Northern megacontinent representing uniform America-Europe-Asian space with crust of continental type, with rather not a deep immersion of some part in its northern subpolar area, filled with oceanic water. Three continental branches "beams" - Southern America, African and Australian proceed from it northern part to the South. This megacontinent exists on Earth initially, since the Hadean, and is characterized by autonomous geological development specific to it during all geological history of Earth – 4.4 billion years (Zhirnov, 2014<sub>1</sub> ; Zhirnov, 2014<sub>2</sub>).

## SUMMARY OF RESEARCH

All territory of the Arctic Ocean's bottom, including a passage bottom between Greenland and Scandinavia, is put by continental crust and represents crust of the American and Europe-Asian continents which are directly connected around the North Pole of Earth. Therefore, actually there is a uniform Northern continent of Earth with three large separate continental branches ("radials") - American, African and Australian, directed to the South.

1. The base of the territory of the Arctic Ocean's bottom has thin granite-gneissic layer and thick granulite-basic layer, in difference from crust of adjacent parts of continents.
2. There are some deep grabens in the central part of the Arctic bottom (Norwegian, Greenland, Amundsen, Nansen and others) in which the granito-gneissic layer partially (or completely) is absent whereas primary ultrabasic crust of Earth significantly deformed, are naked on a surface and near it, being covered in some places by a layer of sedimentary rocks of the Paleozoic - Cainozoic age and Cainozoic basalts in some places.
3. Disjunctive tectonics is powerfully shown in the territory of the Arctic' bottom. Two large breaks, defining distinctive features in a structure of different parts of the Arctic bottom are allocated. The large North Greenland break separates Northern part of the Arctic from the Southern part, folded and disjunctive dislocations of them differing by the various directions. The other more extended and wide (more than 100 km) Greenland-Gakkel-Lena break - trough, northeast and longitude directions, differs long geological development, from the Proterozoic till Cainozoic time, and considerable development in its limits series strip positive magnetic anomalies formed in the Proterozoic - Paleozoic time. This break - trough crosses all Arctic and northern part of the Asian continent, to Stanovoy Range of Siberia (56° NL).
4. Fundamental value has opening of the Uniform Northern megacontinent of Earth fixed in space and in geological time, for reconstruction processes of the Earth, Moon and planet Mars origin and for understanding processes of the continents forming (Zhirnov, 2014<sub>2</sub>).

## FUTURE ISSUES

I believe that many scientists in sphere of sciences about Earth have to pay attention to the real geological and geophysical data obtained for last 50 years and summarized a little in this work. It is need to continue scientific investigations in area of Arctic Ocean's bottom for more detail get to knowing structure of it. This especially important also for practical aim – finding large deposits of oil and gas, which have tendency to form in geological structures bottom of the Arctic Ocean's shelf.

## DISCLOSURE STATEMENT

There is no special financial support for this research work from the funding agency.

## ACKNOWLEDGMENT

It is a lot of thanks to my colleagues, especially Dr. Petrishchevsky A., for constructive discussion and criticism, and to Budilov P. for assistance in preparation many drawings for this work.

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